

WHAT IS CLAIMED IS:

1. An energy-selective operation system comprising:
a plurality of handpieces for generating predetermined energies;

a driving signal generator for generating a driving signal with which said plurality of handpieces is driven;

an output switching unit for switching the output destinations of the driving signal to select any of said plurality of handpieces;

selection signal generators, included in said plurality of handpieces, for generating a selection signal which indicates that any of said plurality of handpieces has been selected,

a notifier for notifying information of a handpiece, from which the selection signal is transmitted, out of said plurality of handpieces; and

a switching control unit for controlling said switching unit so that the output destinations of the driving signal will be switched to select the handpiece, from which the selection signal is transmitted, from among said plurality of handpieces.

2. An energy-selective operation system according to Claim 1, wherein:

said plurality of handpieces each includes a hand-held member to be held for treatment and a hold detecting device which detects that the hand-held member is held; and

said selection signal generator transmits the selection signal to said switching control unit in response to a detection signal received from said hold detecting device which has detected that said hand-held member is held.

3. An energy-selective operation system according to Claim 1, further comprising:

an imaging device for imaging a predetermined region to be observed;

a signal processor for producing a predetermined video signal from an image signal produced by said imaging device;

a display device for displaying a predetermined view image according to the video signal sent from said signal processor; and

a superimposition unit for superimposing information of a handpiece, from which the selection signal is transmitted, on the view image displayed on said display device.

4. An energy-selective operation system according to Claim 3, wherein said superimposition unit superimposes on a vide image displayed on said display device information of at least one of a type of handpiece from which the selection

signal is transmitted, and a port which serves as an output destination and to which the handpiece from which the selection signal is transmitted is plugged in.

5. An energy-selective operation system according to Claim 1, wherein said notifier notifies whether a selected handpiece is active.

6. An energy-selective operation system comprising:
a plurality of handpieces for generating predetermined energies;

a driving signal generator for generating a driving signal with which said plurality of handpieces is driven;

an output switching unit for switching the output destinations of the driving signal sent from said driving signal generator to select any of said plurality of handpieces;

hand-held members included in said plurality of handpieces and held for treatment;

hold detecting devices included in said hand-held members, said hold detecting devices each detecting whether said hand-held member is held, and producing a predetermined hold detection signal; and

an output switching control unit for receiving the hold detection signal, and controlling said output switching unit

that switches the output destinations of the driving signal to select a handpiece from which the hold detection signal is transmitted.

7. An energy-selective operation system according to Claim 6, further comprising a notifier for notifying information of a handpiece, from which the hold detection signal is transmitted, out of said plurality of handpieces.

8. An energy-selective operation system according to Claim 7, wherein said notifier notifies information of a port which serves as an output destination and to which a handpiece from which the selection signal is transmitted is plugged in.

9. An energy-selective operation system according to Claim 6, wherein said plurality of handpieces each has a light emitting device that enables discernment of a handpiece from which the hold detection signal is transmitted.

10. An energy-selective operation system according to Claim 9, wherein said light emitting device is located near the distal end of each handpiece.

11. An energy-selective operation system according to Claim 6, further comprising:

an imaging device for imaging a predetermined region to be observed;

a signal processor for producing a predetermined video signal from an image signal produced by said imaging device;

a display device for displaying a predetermined view image according to the video signal sent from said signal processor; and

a superimposition unit for superimposing information of a handpiece, of which selection signal generator has generated the selection signal, on the view image displayed on said display device.

12. An energy-selective operation system according to Claim 6, wherein said driving signal generator includes:

a high-frequency output unit for applying a driving signal, with which high-frequency energy is output, to said handpiece;

an ultrasound output unit for applying a driving signal, with which ultrasonic energy is output, to said handpiece; and

a switching unit for switching the driving signal sent from said high-frequency output unit and the driving signal sent from said ultrasound output unit.

13. An energy-selective operation system according to Claim 6, wherein said plurality of handpieces each generates predetermined energy to be used for treatment in response to the driving signal with which high-frequency energy or ultrasonic energy is output.

14. An energy-selective operation system according to Claim 6, wherein a plurality of different driving signals is applied to said plurality of handpieces.

15. An energy-selective operation system according to Claim 6, wherein said hold detecting device includes a sensor that electrically or optically detects whether said hand-held member is held.

16. An energy-selective operation system according to Claim 6, wherein said plurality of handpieces each includes an identifier with which the type of handpiece can be identified.

17. An energy-selective operation system according to Claim 16, further comprising an identification unit for identifying said identifier and identifying the type of handpiece associated with said identifier.

18. An energy-selective operation system according to Claim 16, wherein said identifier is identified and the type of handpiece associated with said identifier is indicated.

19. An energy-selective operation system according to Claim 6, wherein: said output switching control unit gives control according to the hold detection signal so as to switch the output destinations of the driving signal; and said output switching control unit also gives control according to a selection signal induced with a press of a remote control switch so as to switch the output destinations of the driving signal to thus apply the driving signal to a handpiece selected with the selection signal.

20. An energy-selective operation system according to Claim 6, further comprising an output switch that is turned on or off in order to start or stop outputting predetermined energy from a handpiece which is selected by switching the output destinations of the driving signal using said output switching unit.

21. An operation apparatus comprising:
an energy generator for generating predetermined energy in response to a driving signal generated by a driving

signal generator;

a handpiece body having said energy generator incorporated therein;

a hand-held member included in said handpiece body and held for treatment;

a hold detecting device, included in said handpiece body, for detecting that said hand-held member is held when said hand-held member is held, and producing a hold detection signal; and

a driving signal input device for, when said hold detecting device produces the hold detection signal, receiving the driving signal sent from said predetermined driving signal generator, and transferring the driving signal to said energy generator.

22. An operation apparatus according to Claim 21, further comprising a notifier for, when said hold detecting device produces the hold detection signal, notifying that said hand-held member is held.

23. An operation apparatus according to Claim 21, wherein said energy generator generates ultrasonic energy.

24. An operation apparatus according to Claim 21, wherein said energy generator generates high-frequency

energy.

25. An operation system comprising:

a driving signal generator including a driving signal output device through which a driving signal is applied to a handpiece that is supposed to generate operating energy;

an expansion unit to be plugged in to said driving signal output device so that it can be unplugged freely, said expansion unit including a selector for selectively transmitting the driving signal, which is received through said driving signal output device, through any one of a plurality of output terminals;

a remote controller for remotely controlling said driving signal output device via said expansion unit;

a switching unit for switching the destinations of the driving signal received by said expansion unit according to a signal induced with a manipulation performed on said remote controller so that the driving signal will be transmitted through one of said plurality of output terminals;

a status signal generator for generating an output terminal status signal that indicates whichever of said output terminals has been selected by said switching unit and whether the selected output terminal is active; and

a display device for indicating based on the output

terminal status signal whether the selected output terminal is active.

26. An operation system according to Claim 25, wherein said remote controller is mounted on said handpiece.

27. An operation system according to Claim 25, wherein said remote controller is a keyboard.

28. An operation system according to Claim 25, wherein said handpiece is an ultrasonic handpiece for generating ultrasonic energy as the operating energy.

29. An operation system according to Claim 25, further comprising a display device for displaying an endoscopic image and an imaging device for enabling display of the endoscopic image on said display device, wherein:

said imaging device enables indication of whether a selected output terminal is active on said display device according to the output terminal status signal.

30. An operation system according to Claim 25, further comprising:

shape data representing shapes of handpieces serving as surgical appliances;

a display device for displaying an endoscopic image;
and

an imaging device for enabling display of the
endoscopic image on said display device,

wherein said imaging device includes a pointing mark
generating device and a tracking device for tracking a
handpiece that serves as a surgical appliance and that is
identified based on shape data.

31. An endoscopic operation system comprising:
an endoscope used to observe an intracorporeal region;
a signal processor for processing an image signal,
which is produced by an imaging device incorporated in said
endoscope, to produce a video signal;

an endoscopic image display device for displaying an
endoscopic image, which is picked up by said imaging device,
according to the video signal;

a plurality of operating handpieces for generating
treatment energies;

a driving signal generator for generating a driving
signal which causes any operating handpiece out of said
plurality of operating handpieces to generate treatment
energy;

an output switching unit, connected between said
driving signal generator and said plurality of operating

handpieces, for switching the routes of an output line over which the driving signal is transmitted;

hand-held members included in said plurality of operating handpieces and held for treatment;

hold detecting devices, included in said hand-held members, said hold detecting devices each producing a predetermined hold detection signal when detecting that said hand-held member is held;

an output switching control unit for receiving the hold detection signal, and controlling said output switching unit so that the output destinations of the driving signal will be switched to select an operating handpiece from which the hold detection signal is transmitted; and

a superimposition unit for superimposing information of a handpiece, from which the hold detection signal is transmitted, on an image displayed on said endoscopic image display device.

32. An endoscopic operation system according to Claim 31, wherein said operating handpieces are ultrasonic operation handpieces for generating ultrasonic energy as the treatment energy.

33. An endoscopic operation system according to Claim 31, wherein said operating handpieces are high-frequency

electric operation handpieces for generating high-frequency energy as the treatment energy.